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AMSAT NEWS SERVICE
ANS-077

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

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ANS-077 AMSAT News Service Weekly Bulletins

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From AMSAT HQ KENSINGTON, MD.
DATE March 18, 2018
To All RADIO AMATEURS
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Article Introduces AMSAT's GOLF-TEE and GOLF-1 Satellites

As a follow-up to the announcement that GOLF-TEE and GOLF-1 have been selected for launches through NASA's CubeSat Launch Initiative, we've posted an article introducing the GOLF program on the AMSAT website: http://tinyurl.com/ANS-077-AMSAT-GOLF

[ANS thanks Paul, N8HM for the above information]

ARISS-US Program Education Proposal Deadline is April 30, 2018

ARISS News Release No. 18-03
Dave Jordan, AA4KN
ARISS PR
aa4kn(a)amsat.org

International Space Station Astronauts are Calling CQ Students
ARISS-US program education proposal deadline is April 30, 2018.

March 15, 2018: The Amateur Radio on the International Space Station (ARISS) program is seeking proposals from US schools, museums, science centers and community youth organizations (working individually or together) to host radio contacts with an orbiting crew member aboard the International Space Station (ISS) between January 1 and June 30, 2019.

Each year, ARISS provides tens of thousands of students with opportunities to learn about space technologies and communications through the exploration of Amateur Radio. The program provides learning opportunities by connecting students to astronauts aboard the International Space Station (ISS) through a partnership between NASA, the Radio Amateur Satellite Corporation, the American Radio Relay League, and other Amateur Radio organizations and worldwide space agencies. The program's goal is to inspire students to pursue interests and careers in science, technology, engineering and mathematics (STEM) and Amateur Radio. A ham recently said, "ARISS shows how Amateur Radio is the most unique hobby/service there is."

Educators overwhelmingly report that student participation in the ARISS program stimulates interest in STEM subjects and in STEM careers. One educator wrote, "It exceeded our expectations--it created a great interest in both amateur radio and in space exploration. Our kids are completely inspired!" Ninety-two percent of educators who have participated in the program have indicated that ARISS provided ideas for encouraging student exploration and participation. An educator even joined the ham ranks, saying, "This chance for our school's ARISS contact helped me see the great value of the ham world. I just passed my Technician License this weekend and have already signed up to take a General class."

ARISS is looking for organizations that will draw large numbers of participants and integrate the contact into a well-developed, exciting education plan. Students can learn about satellite communications, wireless technology, science research conducted on the ISS, radio science, and any related STEM subject. Students learn to use Amateur Radio to talk directly to an astronaut and ask their STEM-related questions. ARISS will help educational organizations locate Amateur Radio groups who can assist with equipment for this once-in-a-lifetime opportunity for students.

The proposal deadline for 2019 contacts is April 30, 2018. Proposal webinars for guidance and getting questions answers will be offered March 29, 2018, at 7 p.m. EDT and April 16, 2018, at 4 p.m. EDT. Advance registration is necessary. To sign up, go to https://ariss-proposal-webinar-spring-2018.eventbrite.com

For more details such as expectations, proposal guidelines and the proposal form, visit:
http://www.ariss.org/hosting-an-ariss-contact-in-the-us.html

About ARISS
Amateur Radio on the International Space Station (ARISS) is a cooperative venture of international amateur radio societies and the space agencies that support the International Space Station (ISS). In the United States, sponsors are the Radio Amateur Satellite Corporation (AMSAT), the American Radio Relay League (ARRL), the Center for the Advancement of Science in space (CASIS) and National Aeronautics and Space Administration (NASA). The primary goal of ARISS is to promote exploration of science, technology, engineering, and mathematics (STEM) topics by organizing scheduled contacts via amateur radio between crew members aboard the ISS and students in classrooms or public forms. Before and during these radio contacts, students, educators, parents, and communities learn about space, space technologies, and amateur radio. For more information, see www.ariss.org.

Also join us on Facebook: Amateur Radio on the International Space Station (ARISS)
Follow us on Twitter: ARISS_status

[ANS thanks ARISS for the above information]

AO-92 Operating Schedule Posted for Week of March 18-24

Drew, KO4MA, AMSAT VP Operations updated the AO-92 Operating Schedule page for the coming week:
https://www.amsat.org/satellite-schedules/

AO-92 operations are scheduled among the U/v FM repeater, L-Band Downshifter, Virginia Tech Camera, and the University of Iowa’s High Energy Radiation CubeSat Instrument (HERCI). Please keep the uplink clear during passes with scheduled mode changes.

For the week of 18-24 Mar 2018, the following mode changes are scheduled:

+ 18 March at approximately 1500 UTC we will enable the L band uplink for ~24 hours

+ 22 March at approximately 1345 we will enable the VT camera and high-speed data for ~40 minutes. This is a Caribbean and South America pass. Please be ready to copy high-speed data with FoxTelem, and keep the uplink clear at 1345UTC.

+ All other times the U/v repeater will be open continuously.

[ANS thanks Drew, KO4MA, AMSAT VP Operations for the above information]

AMSAT at the 2018 Hamvention -- Call for volunteers

The 2018 Hamvention will be held on May 18-20, 2018 at Greene County Fairground and Expo Center in Xenia Ohio. Planning is under way for AMSAT's participation!

Phil, W1EME, AMSAT's Hamvention Team Leader is looking for team leaders to assist him. If you can help please consider leading in one of the unfilled positions at w1eme(a)amsat.org

+ Volunteer Assistant

+ Publicity Assistant - JoAnne K9JKM
+ Forum Assistant - Keith KB1SF
+ Sales Assistant
+ Outdoor Demo Assistant - Paul N8HM
+ Facilities and Setup Assistant

We need as many volunteers as possible to help staff the AMSAT booth during the Hamvention Last year, we had about 40 people assist with the AMSAT booth at the Hamvention. It was the efforts of those volunteers that made the 2017 Hamvention a success for AMSAT.

1. May 17 - Booth setup on Thursday.
2. May 18, 19, 20 - Staff the booth during Hamvention hours to answer questions, enroll members, indoor demos, merchandise and book sales. (We will train you!)
3. May 20 - Booth teardown on Sunday

The interaction with AMSAT members, satellite operators, designers, and builders makes the whole experience a lot of fun.

Whether you're available for only a couple of hours or if you can spend the entire weekend with us, your help would be greatly appreciated.

Interested hams should contact Team Leader Phil Smith via email at: w1eme(a)amsat.org for information.

[ANS thanks AMSAT Hamvention Publicity Assistant JoAnne Maenpaa, K9JKM for the above information]

Top 10 Reasons to Come to AMSAT at the Hamvention

10. Rub shoulders with 25,000 of your best friends at the largest hamfest in the United States, including all of the AMSAT Directors and senior officers. See the latest equipment from Icom, Yaesu, Kenwood, Flex, Alinco, M2, Arrow, and many other manufacturers of amateur radio equipment and accessories. Take advantage of discounted pricing you won't find anywhere else.

9. Find out how to organize a contact with the astronauts on the International Space Station for your local school or youth group from our Education and ARISS experts.

8. Pickup the latest AMSAT golf shirts, T-shirts, and hats. Get your copy of the updated "Amateur Satellite Frequency Guide" (laminated frequency chart) and Gould Smith's just revised for 2018 "Getting Started with Amateur Satellites" book. We'll also have assembled wide-band preamps and antennas that are great for portable operation.

7. See demonstrations of SatPC32 and MacDoppler satellite tracking software, and get your operational questions answered. Assembled LVB Trackers will be available.

6. Hear the latest presentation at the joint AMSAT/TAPR dinner.

5. Hear the latest on the Fox and Golf satellites, the International Space Station, other current and future satellites, education news, and an AMSAT update at the AMSAT Forum Saturday, from 11:15 to 1:30.

4. Get one-on-one guidance on setting up your satellite station and making contacts at our "Beginner's Corner". Witness live demonstra-

tions of contacts through satellites.

3. Meet and interact with some of the Engineering Team members working on the Fox and Golf satellites and our new Five and Dime AMSAT ground terminal.

2. Get satellite station and operating tips from some of the best satellite operators in the country.

1. Receive your 2018 laminated Satellite Frequency Chart when you join or renew your AMSAT membership at Hamvention. New members will receive the Frequency Chart and the latest edition of the AMSAT Journal.

[ANS thanks AMSAT Hamvention Publicity Assistant JoAnne Maenpaa, K9JKM for the above information]

AMSAT Field Day on the Satellites

It’s that time of year again; summer and Field Day! Each year the American Radio Relay League (ARRL) sponsors Field Day as a “picnic, a campout, practice for emergencies, an informal contest and, most of all, FUN!”

The event takes place during a 23-hour period on the fourth weekend of June. For 2018 the event takes place during a 27-hour period from 1800 UTC on Saturday, June 23, 2018 through 2100 UTC on Sunday, June 24, 2018.

Those who set up prior to 1800 UTC on June 23 can operate only 24 hours. The Radio Amateur Satellite Corporation (AMSAT) promotes its own version of Field Day for operation via the amateur satellites, held concurrently with the ARRL event.

This year should be easier than many years since we have more than 10 transponders and repeaters available. Users should check the AMSAT status page at http://www.amsat.org/status/ and the pages at http://www.amsat.org/?page_id=177 for what is available in the weeks leading up to field day.

To reduce the amount of time to research each satellite, see the current FM satellite table at http://www.amsat.org/?page_id=5012 and the current linear satellite table at http://www.amsat.org/?page_id=5033

If you are considering ONLY the FM voice satellites, there are SO-50, AO-85, AO-91, AO-92 and possibly PicSat. It might be easier this year to make that one FM contact for the ARRL bonus points with so many FM birds. The congestion on FM LEO satellites is always so intense that we must continue to limit their use to one-QSO-per-FM-satellite. This includes the International Space Station. You will be allowed one QSO if the ISS is operating Voice.

The full set of rules are posted at:
https://www.amsat.org/field-day/

[ANS thanks AMSAT Director Contests and Awards, Bruce Paige, KK5DO, for the above information]

HuskySat-1 Applies for IARU Coordination for Linear V/U Transponder

The IARU Frequency Coordination pages show that the Husky Satellite Lab at the University of Washington applied for frequencies on March 7 for HuskySat-1, a 3U CubeSat with propulsion capability.

Launch is planned for a high inclination LEO late 2018 on the ELaNA XXIV mission. HuskySat-1 will become the first amateur satellite from Washington state.

HuskySat-1 will demonstrate the capabilities of new technologies being developed at the University of Washington and expand the capabilities of CubeSats as a whole. In particular, a high-thrust pulsed plasma thruster (PPT), and high-gain communications system will form the core technology suite on board the satellite.

HuskySat-1 will carry AMSAT's 30 kHz wide V/u linear transponder for amateur radio SSB/CW communications. The transponder is the same design as the transponder being flown on RadFXSat-2/Fox-1E in 2018 including the 1k2 BPSK telemetry channel. HuskySat-1 will also transmit BPSK telemetry at 1 Mbps in the 24 GHz band.

In order to utilize the transponder and telemetry beacon, equipment suitable for other linear transponder satellites such as FO-29 and AO-73 will be needed. Estimates are that a few watts into a small beam should be adequate, with a small beam with a low noise preamp serving for reception.

Additional details have been posted at:
https://sites.google.com/uw.edu/huskysatellitelab/huskysat-1
https://amsat-uk.org/2018/03/10/huskysat-1-cubesat/
IARU frequency coordination activities may be followed on-line at:
http://amsat.org.uk/iaru/

[ANS thanks the IARU, the Unviversity of Washington, and AMSAT-UK for the above information]

Thousands of Kilometers Via Satellite and a WAS Award Too

Listen to a recording of a 6005 KM contact with KE9AJ and OA4/XQ3SA on March 11: http://tinyurl.com/ANS-077-AO7-QSO
Recording provided by NP4JV.

A 4100 KM contact via AO-92 between Kuthumabaka Ramesh, VU3FTP, in Hyderabad City, India and Suryono P. Kebayoran Lama Selatan YD0NXX, in Jakarta, Indonesia on March 9 can viwed at:
https://www.youtube.com/watch?v=uShVF6Y6MzM&feature=youtu.be

On March 10 K7TAB (DM43)worked VY0ERC (ER60) located at 80 degrees north via AO-91 for a 5250 KM QSO. Both stations used a Kenwood TH-D72A HT running 5W.

MI6GTY (IO64) and N9EAT (EN41) enjoyed a 6010 KM QSO vis AO-91 on March 11. This is a new distance record for AO-91.
See: https://www.amsat.org/satellite-distance-records/

Jose, EB1AO in Spain (IN52) and David, W0DHB (DN70) completed a 7606 KM contact on March 12 via AO-7. They had a 2 minute window with 0.4 degrees for EB1AO (contact was made at 0.1 degree elevation) and 2 degrees for W0DHB. Jose operated portable on a hilltop with an IC-910 and Arrow Antenna. To date he has 34 states via satellite.

PS8ET (GI84) worked CU2ZG (HM77) for a 5096 KM contact wia
AO-91 on March 12.

Mikey, K7ULS reported working FG8OJ and PJ2/HB9WDF via FO-29
on March 13.

Now, a report on quantity vs distance ... congratulations to
Michael, K9EI for his completion of Satellite Worked All States.
He commented on Twitter, "Please let me say thank you to everyone
who helped me finally achieve my first WAS. I became a ham in 1977,
but never was involved enough to accomplish WAS. I am even more
satisfied that I was able to do it first on satellites among so
many friends. You've all been fantastic."

[ANS thanks everyone for the above information]

Phase 4 Weekly Update 9 March

Michelle Thompson, W5NYV has Phase 4 Weekly Report for 9 March 2018:
View it on-line to hear all the details at:
https://youtu.be/1GirCiB5XNg

A summary of the key points discussed this week include:

+ Exploration of the use of the Ettus Research E310 and X310
  Universal Software Radio Peripheral (USRP) devices.

+ GNU Radio Conference 2018 tickets are available:
  https://www.gnuradio.org/grcon-2018/
  The whole conference is packed with wonderful experiences and fun.
  Come join Phase 4 Ground at our DVB-S2 and DVB-S2X workshop and
  hackfest on Friday! Presented by Open Research Institute, Inc.
  with a goal to produce an open source DVB-S2/X receiver in GNU
  Radio primarily for AMSAT. Please share with whoever you think
  would love to come! There will be a new user track as well as
  advanced content, workshops, vendors, demonstrations, and multiple
  social events.

Look for the Phase 4 articles coming in the March/April 2018 AMSAT
Journal.

[ANS thanks Michelle Thompson, W5NYV and the Phase 4 Team for the above
information]

Early Bird Bookings for the AMSAT-SA Space Symposium Now Open

Bookings for the annual AMSATSA Space Symposium which will be held
on May 19, at the Innovation Hub in Pretoria is now open.

The symposium features interesting subjects including development
of a new SDR transponder, building a ground station to operate Ama-
teur Radio's first geostationary satellite Es'hail-2, a BACAR-ready
10 GHz beacon to exercise your Es'hail-2 receiver, a practical approach
to improving modular system reliability, FunCube Data and some of its
secrets and a progress report on Kletskous and its next generation
transponder and systems.

Get the booking form and details on www.amsatsa.org.za.

[ANS thanks AMSAT South Africa for the above information]

Melbourne University Student Space Program Update

Gabriel, VK3EXO, provided an update to the Wireless Institute of Australia regarding the Melbourne University Student Space Program.

From the RF perspective project personnel have successfully transmitted packets between the ground station and the satellite radio. They have interfaced the satellite radio with the flight computer and the satellite antenna has been deployed.

The ACMA recently approved the frequency allocation request and will be taking the application to the ITU on behalf of the project team. This is a huge achievement, particularly for an entirely student led organization.

A major milestone has been passed with power-up test of everything to be included in the satellite all laid out on a flat surface called a FlatSat. The next step is to perform extensive software and hardware testing. The testing will be performed over the next few weeks.

The Mission Operations website development is going well and the team is on track for launch at the end of this year / early next year.

[ANS thanks the Wireless Institute of Australia VK1WIA news for the above information]

AMSAT Member Perry F. Crabill, W3HQX Silent Key

This week Larry Wright, W8ANT, reported the sad news that Perry F. Crabill, W3HQX, member of AMSAT, born in 1920, formerly of Washington, DC and suburban Maryland and until his passing of Winchester Virginia, is now a Silent Key at age 97.

Perry was first licensed as W3HQX in "19ought38" as he was wont to say, worked for C&P telephone for many years, served in the US Navy in World War Two as a radio technician (passing the difficult Eddy test,) and was active for almost 70 years in a variety of amateur radio activities. Known affectionately by the 147.300 repeater's "Question Of the Day" group as "The Professor", Perry had a wide range of on-the-air acquaintances.

A memorial service and celebration of his life was held on Saturday, March 24 in Winchester, VA.

[ANS thanks Larry Wright, W8ANT for the above information]

China's DSLWP-A1/A2 Satellites to Transmit Amateur Radio Data from the Moon

China is planning to launch the Chang’e 4 lander and rover which is slated to land on the far side of the moon in December. The lander configuration will use a relay satellite for a control and data link with Earth.

Also aboard this flight will be a pair of microsatellites, DSLWP-A1 and DSLWP-A2, which will test low-frequency radio astronomy and space-based interferometry. These two lunar orbiting satellites developed by students at the Harbin Institute of Technology will

include educational and amateur radio payloads (but not a trans-
ponder).

The Amateur Radio payload on DSLWP-A1 will provide a telecommand uplink and a telemetry and digital image downlink. Radio amateurs will be able to transmit commands that allow them to send commands to take and download an image. The IARU has coordinated downlinks on 435.425 MHz and 436.425 MHz for A1.

Downlinks have been coordinated for A2 are 435.400 MHz and 436.400 MHz using 10K0F1DCN or 10K0F1DEN (10-kHz wide FM single-channel data) 250 bps GMSK with concatenated codes or JT65B.

A1 and A2 will be deployed into a 200 × 9,000 kilometer lunar orbit. The 50 × 50 × 40 centimeter spacecrafts each weigh about 45 kilograms and are three-axis stabilized. Two linear polarization antennas are mounted along and normal to the flight direction. The satellites will use the moon to shield them from radio emissions from Earth for the long wavelength space-based interferometry experi-
ments.

The launch is anticipated for May or June on a CZ-4C vehicle, putting the satellites' deployment about 6 months ahead of the launch of the Chang'e 4 lander and rover.

[ANS thanks the Harbin Institute of Technology, IARU, and ARRL for the above information]

Satellite Shorts From All Over

+ The AmazonSmile Triple Donation Promotion Now Under Way
  Triple your impact! Until March 31, Amazon is tripling the donation rate on your first AmazonSmile purchase. You can name AMSAT to receive the donation from your purchase. https://smile.amazon.com

+ The Station and Operating Hints page has been updated to include WD9EWK's November/December 2017 AMSAT Journal article Working the FalconSAT-3 Digipeater (with Kenwood TH-D72 and TM-D710G radios) Read how to use the 9600bps AX.25 V/U digipeater. https://www.amsat.org/station-and-operating-hints/ and scroll down the page to the other digipeater articles.

+ Use the HA7WEN WebSDR at http://152.66.73.241:33333/ to listen to FO-29 traffic over Europe. (via Michel F6HTJ)

+ Enjoy a video made by the University of Bristol team's entry to the 2017 UK Students for the Exploration and Development of Space (UKSEDS)Lunar Rover Competition: https://youtu.be/ouL-cg1U0MI Visit http://ukseds.org/about/ to learn more about the UK's national student space society.

+ The March PDF of the weather satellite publication GEO Newsletter produced by the Group for Earth Observation is now available for free download: http://www.geo-web.org.uk/geoquarterly.php

+ Amateurs preparing for our microwave future in space may find this information, relayed on the microwave(a)mailmanlists.us e-mail reflector, useful. An Analog Devices RF Detector Surf Board is $10 evaluation kit containing an RF Power detector made up of three RF detector chips covering DC to 9 GHz, one with 80 dB range. Search for part number ADL5XDETECTRKIT

at https://www.richardsonrfpd.com to figure out if you want one. Even if you don't buy anything the page has links to useful electronic design tools.

+ GM4VZY produces a weekly Weather Satellite Report listing polar orbiting and geostationary satellites transmitting on VHF and L-band:
https://groups.yahoo.com/neo/groups/weather-satellite-reports/info

+ Space enthusiasts, make room on your calendars. The Smithsonian Channel will premiere two sets of back-to-back space documentaries in late March and early April:
https://www.space.com/39950-smithsonian-channel-space-specials.html

+ Not really satellite oriented but you guys are going to like this one anyways ... HF Voyager is an ocean-going drone currently making its way from Hawaii to California that can carry out amateur radio contacts in several digital modes. On-board in a waterproof container is an Elecraft KX3 and a Raspberry Pi computer enabling a variety of digital modes to be used. The station uses FT8 and PSK-31 on the 20 meter band as its primary operating modes. You may also find it using WSPR in times of poor propagation. Call sign to look for? KH6JF/MM. More details and the current location of the drone are available at: http://www.jrfarc.org/

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Happy New Year,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM
k9jkm at amsat dot org